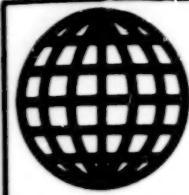


JPRS-TTP-88-011
2 SEPTEMBER 1988



FOREIGN
BROADCAST
INFORMATION
SERVICE

JPRS Report—

Telecommunications

Telecommunications

JPRS-TTP-88-011

CONTENTS

2 SEPTEMBER 1988

CANADA

CRTC Radio Proposals Emphasize Canadian Content [Toronto THE GLOBE AND MAIL 4 Jun 88]	1
Nostraern Telecom Introduces DPN-100 Networking System [Bertrand Marotte; Toronto THE GLOBE AND MAIL, 14 Jun 88]	1
CRTC Announces Internal Organization Restructuring [Toronto THE GLOBE AND MAIL, 6 Jul 88]	2

CHINA

Ministry Plans To Improve Telecommunications [Ma Lixin; Beijing CHINA DAILY, 27 Jul 88]	3
Official Vows To Protect Satellite Secrets [Beijing CEI Database 26 Aug 88]	3
New, Larger Carrier Rockets Developed [Beijing XINHUA 29 Aug 88]	4
Fairness to Satellite Launching Service Urged [Beijing CEI Database 7 Jul 88]	4
11th Scientific Research Satellite Launched [Beijing XINHUA 5 Aug 88]	5
Official Discusses Satellite Launching Services [Beijing XINHUA 8 Aug 88]	5
Two Satellite Ground Stations Completed in Tibet [Beijing XINHUA, 28 Jun 88]	5
Satellite Services No Threat to U.S., Europe [Beijing XINHUA 20 Aug 88]	5
Developments in Sino-Brazilian Cooperation	6
Satellite Details Disclosed [Beijing XINHUA, 7 Jul 88]	6
FRG To Conduct Tests Using Long March Rocket [Beijing RENMIN RIBAO, 9 May 88]	6
Foreigners Invited To Witness Satellite Launch [David Chen; Hong Kong SOUTH CHINA MORNING POST 2 Aug 88]	6
Hungarian Newsmen Tour Hsin-Hsiang Space Center [Budapest MTI, 5 Jul 88]	7
Fiber Communication Cable Completed in Hubei [Beijing XINHUA 28 Jun 88]	7

EAST EUROPE

BULGARIA

New Bulgarian Communications System [Sofia RABOTNICHESKO DELO 12 Aug 88]	8
Bulgarian Plans for Improving Radio, TV Networks [Georgi Dzhagarov Interview; Sofia POGLED 22 Aug 88]	9

LATIN AMERICA

INTER-AMERICAN

5-Year Caribbean Communications Network Plan Described [Kingston THE DAILY GLEANER 11 Jun 88]	11
--------------------------------------------------------------------------------------------------------	----

BARBADOS

ITU Helping With Computer Technology for Broadcasting [Bridgetown WEEKEND NATION, 15-16 Jul 88]	11
----------------------------------------------------------------------------------------------------------	----

JAMAICA

Opposition Leader Sets Out Broadcasting Policy Views [Kingston THE DAILY GLEANER 19 Jul 88]	12
------------------------------------------------------------------------------------------------------	----

NEAR EAST & SOUTH ASIA

AFGHANISTAN

Communication Services Expanded [Kabul THE KABUL TIMES, 4 May 88] 13

INDIA

INSAT-1C To Launch From French Guiana 22 July [Delhi Domestic Service, 17 Jul 88]	13
INSAT-1C Launched From French Guiana [Delhi Domestic Service, 22 Jul 88]	13
Solar Panels, Antenna Deployed [Delhi Domestic Service, 22 Jul 88]	14
INSAT-1C Moves Into Intermediate Orbit [Delhi Domestic Service, 23 Jul 88]	14
Satellite Reaches Geosynchronous Orbit [Delhi General Overseas Service, 25 Jul 88]	14
INSAT-1C Satellite's Solar Power Pack Fails [Delhi Domestic Service, 1 Aug 88]	14
Augmented Satellite Launch Vehicle Mission Fails [Delhi Domestic Service, 13 Jul 88]	14
More on Failed Mission [Delhi Domestic Service, 13 Jul 88]	15
Papers Report Progress in Indian Satellite Program	15
Planned, Past Launchings [Calcutta THE TELEGRAPH, 10 Jun 88]	15
Polar Satellite Launch Vehicle [Madras THE HINDU, 6 Jun 88]	15
Satellite Rescue System [New Delhi PATRIOT, 17 Jun 88]	16
Transmitters To Counter Pakistan Television 'Invasion'	
[Vineet Dikshit; New Delhi PATRIOT, 13 Jun 88]	16
Plan To Produce Indigenously Developed Optical Fibers [New Delhi PATRIOT, 15 Jun 88]	17
Trivandrum-Cochin TV Link [Delhi Doordarshan Television Network 21 Aug 88]	17
Air Decides Against Overseas Relay Stations [Vineet Dikshit; New Delhi PATRIOT, 19 May 88]	18
Minister Explains AIR Network Expansion Plan [Delhi Domestic Service, 20 Jul 88]	18
Indian Telephone Seeks Micron Chip Technology [Madras THE HINDU, 20 Jun 88]	18

IRAN

Abadeh Transmitter Becomes Operational [Tehran Domestic Service, 27 Jun 88]	19
Yasuj Transmitter Begins Operations [Tehran ETTELA'AT 17 Jul 88]	19
Shahrud Radio Transmitter Station Inaugurated [Tehran ETTELA'AT 11 Jul 88]	19
Mianeh Transmitter Begins Operations [Tehran ETTELA'AT 24 Jul 88]	20
Second Network Transmitter Operational [Tehran Domestic Service, 17 Jul 88]	20

ISRAEL

Israel Radio Trims Foreign Language Programs [Greer Fay Cashman; Jerusalem THE JERUSALEM POST 3 Jul 88]	20
------------------------------------------------------------------------------------------------------------	----

WEST EUROPE

EUROPEAN AFFAIRS

European Companies Calling for Telecom Standards [Amsterdam COMPUTABLE, 4 Mar 88]	21
-----------------------------------------------------------------------------------	----

DENMARK

ISDN Standard System To Have European Premier in Country [Henrik Damm; Copenhagen BERLINGSKE TIDENDE, 26 May 88]	21
Communications Firm Reduces Expectations for Net [Kaj Skaaning; Copenhagen BERLINGSKE TIDENDE, 30 Dec 87]	21

FEDERAL REPUBLIC OF GERMANY

Soviet Envoy Acts To 'Quell Fears' on Satellite [Hamburg DPA 19 Aug 88]	22
Government Approves Space Station Draft Agreement [Bonn DIE WELT, 23 Jul 88]	22
New Satellite for USA-FRG Communication [Duesseldorf HANDELSBLATT, 6 Jun 88]	22

FRANCE

Cooperation With Japan To Counter Japanese Monopoly [Paris *LE FIGARO* 14 Jul 88] 23
Cooperation With Italy on Supranational Information Network [Paris *LES ECHOS* 22 Jul 88] 23
Matra, Alcatel in French Telecom Satellite Program
[Toulouse *LA LETTRE DU CNES*, 8 Feb 88] 23

GREECE

Satellite TV Planned for 9 Cities [Athens *ATHENS NEWS* 6 Aug 88] 24

SWEDEN

Mobile Phone System To Be Tested In Stockholm [Stockholm *DAGENS NYHETER* 12 Aug 88] ... 25

TURKEY

Satellite Broadcasts Encoded [Istanbul *MILLIYET*, 12 Apr 88] 25

CRTC Radio Proposals Emphasize Canadian Content

55200047 Toronto *THE GLOBE AND MAIL* in English 4 Jun 88 p B5

[Text] As network and syndicated radio shows grow in importance, the federal broadcast regulator is determined to ensure that program sellers and buyers alike do their bit to promote Canadian-produced shows.

That's the clear message from long-awaited proposals on radio networking and syndication the Canadian Radio-Television and Telecommunications Commission released this week to a generally warm response from the industry.

The commission proposes ensuring that domestic program producers benefit in two ways:

- First, by stipulating a minimum of 66 per cent Canadian content on an annual basis for network operators who distribute an average of seven hours a week or more of network programming;
- And second, by stipulating that at least 66 per cent of all the programs individual local AM and FM stations buy rather than produce themselves—excluding play-by-play sports—are also Canadian.

The growing attraction of syndication, especially to radio stations in smaller markets, is that it can give the stations access to high-quality programs they could never afford to produce themselves—and generally at low, if any, cost.

That's because the program producers and syndicators generally almost give the stuff away. They make their money by selling national advertising spots, while also leaving space in the shows for local stations to sell their own ads.

Radio executives' travel to the nation's capital also could be cut down if something comes of the commission's stab at clarifying what does and does not constitute a radio network, and, hence, the situations in which broadcasters, distributors and program producers must apply for network licences.

And that, said commission policy analyst staffer Michael Ferras, a co-author of the proposals, means radio executives would in most instances be able to consult a document rather than the commission itself to figure whether a particular program they have in mind needs such a licence or not.

As important for the bigger players—there are less than half a dozen of any size in Canada at the moment—the commission also wants to introduce what radio executives call an omnibus licence.

This would free them from the burden of the current system under which they must apply for separate network licences for each individual program.

One of the key elements of the commission's attempt to clarify the network definition has to do with a stipulation in the Broadcasting Act that any program distribution arrangement in which the station broadcasting the show has delegated control over its content or the time at which it is broadcast must be considered as a network operation.

In its proposals, the commission says it would consider such delegation has occurred—and a network licence is therefore necessary—in three sets of circumstances:

- Where a station, as a condition of acquiring a program, signs a formal agreement under which it must broadcast the show at a specific time or within a specific span of time;
- Where "there is evidence" that shows are being broadcast on that basis even though no formal agreement exists;
- Where stations simultaneously receive—via satellite—and broadcast a show and hence cannot exert any editorial control over its content or scheduling.

Another key element is that the commission proposed applying the loss of editorial control criterion only to live programs, such as sports broadcasts or open-line shows, and not to so-called "live-from-tape" shows that have been pre-produced, even though the station may receive and broadcast them simultaneously.

/9274

Northern Telecom Introduces DPN-100 Networking System

55200048 Toronto *THE GLOBE AND MAIL* in English 14 Jun 88 p B18

[Article by Bertrand Marotte]

[Excerpts] As part of its plans to grab a larger share of the burgeoning data communications market, Northern Telecom Canada Ltd has introduced a new networking system.

Called DPN-100, the new line of packet switching products will allow Northern Telecom to move into the low end of the market for the first time, supplying smaller companies in addition to its traditionally much larger corporate customers, said Michael Butler, vice-president of data communications and business development at the company, which is a unit of Northern Telecom Ltd of Mississauga.

"We see it as a significant growth product for us," he said.

Northern Telecom will be able to accommodate customers needing as few as eight data access lines or as many as 30,000, he said. The system is a refinement of the original SL-10 packet switching system and permits much smaller size with increased capacity, he said.

Northern Telecom has tended to ignore the end user, Mr Butler said. The new system will be available for applications such as inventory control and credit card verification in retailing.

Data communications—as opposed to voice—represents a "major growth opportunity" for Northern Telecom, Mr Butler said. It now accounts for between 5 and 10 per cent of the company's revenue.

The DPN-100 system would become part of the new Integrated Services Digital Network, a proposed set of global technical standards to make possible the transmission of voice, data and video signals over the same common telephone line.

/9274

CRTC Announces Internal Organization Restructuring

55200052 Toronto *THE GLOBE AND MAIL* in English 6 Jul 88 p B6

[Text] The Canadian Radio-Television and Telecommunications Commission will be streamlined to better handle its job of regulating the airwaves, CRTC spokesman Pierre Pontbriand says.

The commission's broadcasting section will be divided into three separate units to handle television, radio and cable. Each will report directly to commission chairman Andre Bureau, eliminating a level of management.

It's a major reorganization within the CRTC, affecting about half of the 400 people who work there. No one will be laid off, although three people will be assigned to other jobs, Mr. Pontbriand said.

Broadcasters and cable companies will see improved services in their dealings with the CRTC, but other than that the public won't notice much difference, he added.

The CRTC has been criticized in recent years for being too centralized, too slow in making decisions and unable to respond to regional needs.

/09599

Ministry Plans To Improve Telecommunications
HK2707015488 Beijing CHINA DAILY in English
27 Jul 88 p 1

[By staff reporter Ma Lixin]

[Text] China expects to have 16.26 million telephone lines in the next two years under a plan to improve telecommunications with the rest of the world.

This year, 700,000 programme-controlled telephone lines are scheduled to be installed, officials from the Ministry of Post and Telecommunications said yesterday.

According to the officials, operations to build 550,000 telephone lines have already begun.

Zhu Gaofeng, Vice-Minister of the Ministry of Post and Telecommunications, said that the nation's telecommunications had gone through the fastest changes yet during the past three years, especially in the coastal areas.

He said that the changes are mostly reflected in the improvements in the automation of phones and telegrams.

China's policy to place the development of telecommunications as a priority of the national industrial and social development has boosted the application of modern equipment and high technology to change the nation's generally backward situation in this area.

The international direct dialling service stationed in two major cities—Beijing and Shanghai—is now able to link more than 300 Chinese cities with the rest of the world, Zhu said.

The campaign to update the country's telecommunications started three years ago.

Since 1985, telecommunications officials in China have begun to take bold steps to introduce advanced international technology, which is the first time the country has launched a large-scale improvement campaign in the problem-plagued field.

In the three years, China has installed 900,000 foreign- and domestically-made programme-controlled civilian phone lines, accounting for about 20 percent of the total urban phone lines in the nation, officials from the ministry said.

At present, the country claims to have more than 3,000 kilometres of optical-fibre lines, and in big cities basically all telecommunications are digitalized.

The international automatic telephone bureaux in Beijing and Shanghai, which have been using domestic telecommunications satellite operations since 1985, joined the country's provincial capitals and coastal cities in links with world automatic telephone networks.

Foreign business people in China used to complain about the bad phone links with the outside world but now they enjoy a much better service.

One of the factors in changing the technical structure of telecommunications is to popularize China's scientific and technical research achievements, officials said.

The establishment of a nationwide automatic civilian telegram switching network and a telex system linking more than 20 major cities is the result of the application of new technology.

In the past three years, research institutions and universities of telecommunications have been playing an active role in developing new technology and they have been successful in 754 projects, according to officials.

Among them, 581 new technical innovations, about 74 percent of the research achievements, have been applied to actual work.

Official Vows To Protect Satellite Secrets
HK2608123388 Beijing CEI Database in English
26 Aug 88

[Text] Beijing (CEI)—The technological secrets of foreign satellites is safe when on Chinese territory, said Lin Zongtang, minister of aeronautics and astronautics industry.

Speaking to reporters on August 22, the minister said the entry of foreign satellites into China is of a transit nature. To the satellite producing country, it is neither a matter of export nor technology transfer. The satellites made in the U.S. or in other countries but with U.S. technology patent will be free from customs examinations when entering China for launching with the "Long March" carrier rockets, the minister said.

The official noted that China will never probe into the technology secrets of those satellites and their related equipments when handling the transportation, storage, testing and launching, the whole process of which is under the supervision and control of the satellites' owners.

He also refuted the rumour that the low price of China's foreign satellite launching service is due to "government subsidies" and this posed a threat to rocket companies in the West. He pointed out that the corporation is responsible for its own profits or losses and enjoys no government subsidies. Instead it is obligated to pay taxes.

Lin pointed out that the corporation, a foreign trade enterprise affiliated to the Chinese Ministry of Aeronautics and Astronautics Industry is a legal entity registered according to the law of the country. It is entitled to do the business of foreign satellites launching.

He said that China's service of satellite launching is but a supplement to the world satellite launching market and a new choice offered to the user.

New, Larger Carrier Rockets Developed

OW2908115788 Beijing XINHUA in English
1127 GMT 29 Aug 88

[Text] Beijing, August 29 (XINHUA)—China has begun developing three new types of rockets to launch commercial satellites for Chinese and foreign clients in the early 1990s, a leading Chinese space expert said here today.

The new rockets will have a bigger carrying capacity than the current "Long March" series rockets, said Wang Yongzhi, director of the No. 1 Research Institute of the aerospace industry ministry.

The "Long March No. 3A", which will be developed on the basis of the the "Long March No. 3", is designed to have a carrying capacity of 2.5 tons in synchronous transfer orbit.

The "Long March No. 2E", which will be developed on the basis of the "Long March No. 2", is to have a carrying capacity of 8.8 tons when launching low-orbit satellites.

A new three-stage large carrier rocket will be built on the basis of the "Long March No. 2E" and the third stage of the "Long March No. 3A". It is designed to have a carrying capacity of 4.5 tons in synchronous transfer orbit.

Meanwhile, the "Long March No. 1" carrier rocket, used to launch small, low-orbit satellites, will be converted into the "Long March No. 1D" carrier rocket with a carrying capacity of 700 kg to 750 kg for launching low-orbit satellites.

Since 1980, Chinese-built carrier rockets have made dozens of flight experiments and satellite launchings.

Companies from 20 countries have contacted China's satellite-launcher—the Great Wall Industrial Company—on launching satellites for them or cooperating with them in space technology development.

Fairness to Satellite Launching Service Urged

HK0707133988 Beijing CEI Database in English
7 Jul 88

[Text] Beijing (CEI)—A senior engineer of a Chinese satellite launching company on July 5 urged the pairs-based coordinating committee to be fair to China's satellite launching service for foreign customers.

"We do hope that the meeting will give the green light to foreign satellites to be launched in China," said Chen Shouchun, chief engineer of the China Great Wall Industrial Corporation.

In recent years the committee has somewhat relaxed its restrictions on trade with China, but strict control is still imposed on the export of China's highly sophisticated products.

To use the Chinese service, he explained, foreign satellites should be shipped to Chinese territory. Therefore, the committee's member countries have to sign contracts with the approval of the committee and obtain satellite exit permits from their own governments.

The China Great Wall Industrial Corporation has already signed agreements and contracts with a number of companies in these countries, said Chen, chief designer of China's 'Long March No. 1' rocket.

Recently, in their attempt to shoulder the Chinese service out of the international market, some people in the West have accused China of heavy government subsidies for launchings and tendering at below-cost prices.

They have also confused foreign satellite launching by China with technology transfer.

Chen said that his company receives no subsidies from the government and has to be responsible for its own profits and losses.

He agreed that China charges less than European and U.S. agencies. But, he said, this is because China's labor costs are low and it does not pursue high profits in initial launchings.

Chen reiterated that China's satellite-launching service poses no threat to those of European countries or the United States.

"Our participation in the world market will provide international customers with more choice and help promote the development of the world's space industry, including satellite communications," he said.

11th Scientific Research Satellite Launched

*OW0508120188 Beijing XINHUA in English
1125 GMT 5 Aug 88*

[Text] Beijing, August 5 (XINHUA)—China launched another return satellite, its 11th, for scientific exploration and technological experiments today at 1125 (Beijing summer time) at the Jiuquan Satellite Launching Center in Gansu Province.

All meters and instruments on the satellite, now in pre-designated orbit, are functioning normally, according to information from the center.

The satellite was sent into space by a "Changzheng (Long March) No 2" carrier rocket, and will be recovered in a few days.

Clients and representatives from firms of Federal Germany, Sweden, France and the United States watched the satellite launching at the center—the first time foreigners were invited to watch a satellite launching in China.

The satellite also carried experimental devices owned by three Federal German firms.

This was the second time for China to provide piggyback service for foreign clients. The first was for the Matra Company of France in August last year.

Official Discusses Satellite Launching Services

*OW0808230188 Beijing XINHUA in English
1358 GMT 8 Aug 88*

[Text] Beijing, August 8 (XINHUA)—The low prices China charges for satellite launching services should not pose any threat to other nations providing similar services, a Chinese space industry official said today.

China can only carry out four launchings a year for foreign customers, Yu Fusheng, vice-president of China Great Wall Industry Corp., said at a press conference. "China's satellite launching capacity is limited," he said. "It is only a supplement to the international launching services."

He pointed out that China's launching service is not for military purposes but peaceful utilization and exploration of outer space.

U.S officials have said it is 30 to 50 percent cheaper to launch satellites with China-made rockets than U.S. or European ones.

Yet, Yu noted the Chinese Government does not subsidize the industry for launching satellites for foreign customers.

"There is no such problem of predatory sales."

He said a certain company, which accused the Chinese Government of subsidizing the industry, has been subsidized by its government.

"It is our low labor cost that makes our launching service price lower," Yu said.

He said the service is still in its infancy in China and so "we have to provide better and preferential service according to international practices."

Since 1985, the China Great Wall Industry Corp. has established commercial relations with about 40 firms in 20 countries. It has provided launching services for two companies.

The corporation will use its "Long March II" rocket to launch a scientific experiment satellite for the Swedish space corporation in 1991, Yu said.

China has already launched two satellites on its own—one in March and the other last week. It will launch a meteorological satellite later in the year.

Two Satellite Ground Stations Completed in Tibet

*OW1107012788 Beijing XINHUA Domestic Service in Chinese
2258 GMT 28 Jun 88*

[Text] Shanghai, 29 Jun (XINHUA)—Two satellite ground stations, one in Qamdo and the other in Ngari of Tibet, were completed recently and will be put into operation soon. The equipment for both stations was supplied and installed by the First Research Institute of the Ministry of Post and Telecommunications, which is located in Shanghai. The Tibetan Autonomous Region will begin telecommunications service through satellites after the two stations are put into operation. The antennas at both stations are 6 meters in diameter.

The Electronics Development Office of the State Council early last year issued a plan for building a number of satellite communications ground stations in outlying regions. The two are the first completed among those planned stations.

It is expected that three more satellite communications ground stations with 6-meter antennas will be successively completed in Tibet this year. By then, a satellite communications network will begin to take shape in the Tibetan Autonomous Region.

Satellite Services No Threat to U.S., Europe

*OW2008110288 Beijing XINHUA in English
1034 GMT 20 Aug 88*

[("China's Satellite Launch Services, Just Another Option"—XINHUA Headline)]

[Text] Beijing, August 20 (XINHUA)—China hopes to contribute to outer-space resources through offering launch services for the world market, Minister Lin Zongtang of the Chinese aerospace industry said here today.

Lin said that being a developing country China has a limited capability to produce launch vehicles and thus can only provide about four communication satellite launches each year for foreign customers.

He said the Chinese services are neither competition nor threat to American and European launch service organizations. They merely supplement the world market and give another option for foreign clients.

He described as untrue Western reports that China's launch vehicles are heavily subsidized by the government and are being dumped at low prices.

He said the China Great Wall Industry Corporation, responsible for launch service marketing, receives no government subsidy and, in fact, has to pay taxes.

He said the low price of the Long March launch family vehicles is due to reliable rocket design, highly successful launch record, home-made materials and components, and low labor costs. The corporation also doesn't seek high profits in its sales.

The launch service is offered in accordance with the international practices, he said, adding that in the future the price might have to be adjusted, although "generally speaking, China's launch service price will be still favorable."

He said foreign satellites will be exempted from customs examination to guarantee technical security and that once in China, the satellites or related equipment will be under exclusive control and supervision of their owners until launching.

He said China has no intention to obtain technical secrets of foreign satellites or equipment from the launch services.

Developments in Sino-Brazilian Cooperation

Satellite Details Disclosed

OW0707131588 Beijing XINHUA in English
0654 GMT 7 Jul 88

[Text] Rio de Janeiro, July 6 (XINHUA)—The Brazilian Space Research Institute (INPE) unveiled on Tuesday details of a remote perception satellite which has been under construction by technicians from China and Brazil.

The satellite will be used to study flora, minerals, and underground water supplies from space, and help with agriculture and environmental administration. It also will provide meteorological, cartographic and geographic information. The collected data will be traded with other countries.

According to INPE, the satellite includes a base (1.9 meters in length, 1.8 in width and 2 meters high) and a solar panel measuring 6.3 meters long and 2.3 meters wide. The entire satellite will weigh 1,300 kilos.

The satellite, which is called "China-Brazil earth resources satellite-CBERS," will cost 150 million U.S. dollars, 45 million dollars of which will be assumed by Brazil.

Brazil will develop part of the satellite's components, including the electronic and other sophisticated parts.

China will provide propulsion, control and sensor parts.

The Chinese-Brazilian satellite is expected to compete with other satellites, including the French "Spot" and U.S. "Landsat."

The first of two prototypes of the CBERS is scheduled to be launched in 1992 from a base in Shensi province, northern China. The satellite will be launched on a Chinese "Great March" rocket into helio-synchronous orbit at an altitude of 778 kilometers.

FRG To Conduct Tests Using Long March Rocket

WA1170163588 Beijing RENMIN RIBAO in Chinese
9 May 88 p 7

[Text] Bonn, May 6 (XINHUA)—According to an announcement today by the FRG's Ministry for Research and Technology, the FRG in July of this year will utilize a Chinese recoverable satellite to conduct two experiments under conditions of outer space zero gravity. China will use a "Long March 2" rocket to launch this satellite. The satellite compartment will carry two West German experimental equipment packages: one for measuring and recording external conditions during flight, and the other for carrying out experiments in protein crystal growth. The FRG's Minister for Research and Technology Dr Heinz Riesenhuber emphasized that, up to now, scientific cooperation between both sides has been quite successful, especially with the cooperation of the West German business community in manufacturing the DFH-3 China Television Broadcast Satellite, and the cooperation between the DFVLR (FRG Research and Test Facility for Air and Space Flight) and the Chinese Astronautical Technology Research Institute. In December of this year, on the occasion of the 10th anniversary of bilateral scientific and technological cooperation, a joint scientific conference on microgravity will be held in Bonn.

Foreigners Invited To Witness Satellite Launch

HK0208011588 Hong Kong SOUTH CHINA MORNING POST in English 2 Aug 88 p 9

[By David Chen]

[Text] China will launch another retrievable, two-tonne satellite from its Jiuquan space centre on Friday and for the first time foreign observers are being invited to witness the operation.

Mr Alfred K. F. Ng, regional manager of Pacific General Telecommunications Corporation, has been invited to witness the launching by China's Satellite Launch and Tracking Control General and the China Great Wall Industry Corporation.

He will leave for Beijing today on his way to Jiuquan in Gansu Province, northwest China.

The satellite, containing electronic equipment and other telemetry instruments, will be launched by a Long March II rocket, according to Mr Shangguan Shipan, director of the Launch and Tracking Control General, who has been in Hong Kong for the past few days on business.

Mr Shangguan is travelling with Mr Chen Shouchun, chief engineer of the Great Wall Industry Corporation.

The Jiuquan launching follows the successful placement of a telecommunications satellite in late March from Xichang, southwest Sichuan Province.

The Jiuquan centre is known for its missile tests and the launching of several retrievable satellites.

Next month, China will attempt a new venture—launching a meteorological satellite into a sun-synchronous polar orbit, putting it at a certain spot above the earth at exactly the same time every day.

This satellite will be launched from a third launch centre north of Beijing, using a new rocket, the Long March IV.

Hungarian Newsmen Tour Hsin-Hsiang Space Center

LD0507230188 Budapest MTI in English
1852 GMT 5 Jul 88

[Text] Hsin-Hsiang, July 5 (MTI)—In June the delegation of the National Association of Hungarian Journalists visited Sichuan and had the opportunity offered by Chinese hosts to see the Hsin-Hsiang Space Center as the first visitors of foreign journalists. At the satellite launch center Commander Kua Jin-chun [name as received] told the Hungarian journalists that the center was designed to be the launch site of the Chinese communication satellites and if there is interest abroad space installations will be launched from there.

The planning was started in 1970, construction in 1975 and the first test rocket launched in 1983. The center is a kind of international "show-stage" of Chinese space technology. This would also mean that it could be made use of economically and Chinese leaders have founded a separate company called "Great Wall" to make the space technology commercially available. So far, in addition to the test rocket only three satellites were launched from

this site on a geostationary orbit, all the three with the "Long March 3 [no closing quotation mark as received] (LM 3) type, liquid fueled, three stage and 43 m high rocket.

Since the first success of the Chinese space technology in April 1970 a total of 22 satellites have been launched. The pace of progress is cautious and the use of the launch stations was limited. The domestic economy would be better served by the space industry, which was established at great financial input, had it been used as a source of hard currency revenues. The launch of the LM rockets proved to be a 100 per cent success. The traffic to the space center is available by air, as the airfield is suitable for the landing of Boeing jumbos, and railroad and public road access is also possible. The dry season from October until April is favourable for operations and at least four launches could be made in one season. There are rockets available—the development of Long March 4 was recently announced. A type 3 was able to carry 1.4 tons of payload, the type 4 has a capacity for 2.5 tons and as Hungarian journalists were told development work is underway to manufacture a rocket with 4 tons of payload. The Long March rockets are offered well below world market prices by the Great Wall Corporation for launching satellites. The invitation of foreign journalists indicates that the Chinese leadership wants to increase confidence by opening up the previously secret center where 1,000 experts are waiting for the second commercial order.

Fiber Communication Cable Completed in Hubei

40100031 Beijing XINHUA in English
1257 GMT 28 Jun 88

[Text] Beijing, June 28 (XINHUA)—An optical fiber communication cable stretching 244.8 kilometers has been completed between Wuhan, the capital of Hubei Province and Jingzhou and Shashi cities to the west.

The cable is the longest built in China and features automatic relay stations powered by solar or engine power generating facilities, according to today's PEOPLE'S DAILY.

The cable has a capacity of 480 lines, 120 lines have been put into operation.

The project, which recently passed a technical appraisal by the Ministry of Posts and Telecommunications, will improve long-distance telephone service in the area and upgrade telephone transmission facilities.

The ministry plans to install more optical-fiber cables to improve telecommunications in localities, the paper said.

08309

BULGARIA

New Bulgarian Communications System
4U1708135688 Sofia RABOTNICHESKO DELO in Bulgarian 12 Aug 88 p 2

[Report: "New Communications Techno' ges"]

[Text] A unique kind of "blood circulation system" is being created through a synthesis of modern communications equipment with the computer. Without such a system, the problems of today and tomorrow cannot be resolved.

The strategic task is to provide integrated information services for all levels of management. National communications equipment has a special part to play in solving this task, as it has to provide a telecommunications infrastructure for the needs of the information technologies that are being introduced in Bulgaria, that is, to provide a "blood circulation system" for the whole of the country's information services. This can only be achieved through a synthesis of modern communications equipment with the computer. Sveten Ivanchev, director of the "Information and Communications Technologies" Directorate, will tell us more details.

One of the main directions in which the "Communications" Association is working, is to fully master and further develop the "Bulpak" data transmission system which provides for the automated exchange of information between subscribers who possess personal computers, small and large computers, and terminals of different types.

The next priority is the development and introduction of new telemetric services. The "Videoteks" system is to be introduced. Experimental work is continuing on a "Teletext"-type system, which will provide for the transmission of textual information through a television channel. Experimental work is starting on the problems of speech recognition and synthesis (or audiolink).

In 1987 the "Infotel" system ("Videoteks"-type) was developed, and it is now being introduced. It will provide access through a personal computer or a domestic television set to a large computer and enable data from the computer to be used.

The hardware and software for providing links between computers and communications equipment have become very important. Development organizations in Bulgaria are now devoting attention to these means, which until recently were a "no-man's-land," and are working on their development. The "Communications" Association is doing everything possible to stimulate work in this field, through providing finance and creating conditions for the technical testing of different types of adapters, programs, and systems for matching and

standardizing the connections. These are of particular importance, since they are an essential precondition for integrating computers with communications systems.

The association is expanding and intensifying its previous work on automating its own operational and technological processes, where we have acquired some positive experience. The task now is to classify and standardize the individual types of systems and subsystems to centralize their development work and allow the systems to be put into production in a number of individual plants. Work is proceeding on the changeover to dialogue-type systems using telecommunications channels and the "Bulpak" data transmission network.

All this is being done with the long-term aim of basing the future information systems of the "Communications" Association on a network of computers using "Bulpak."

What Is "Bulpak"?

What work has been completed on introducing this communications system? Engineer Krasimir Ivanov, a chief specialist in the "Communications" Association, gives an answer to this question.

The "Bulpak" data transmission system has entered the final stage of its construction. The first successes can already be seen. Following a period in which the system was operated under load and monitored only using the service terminals, it was possible to conclude that the necessary stability had been achieved. Work on connecting external subscribers began in autumn 1987.

This marked the beginning of the use of the "Bulpak" network for the actual transmission of data in Bulgaria. So far, almost 60 subscribers' stations have been added to the system. For the moment, the main subscribers are the Central Institute for Scientific and Technical Information and its branches throughout the country, as well as other enterprises and organizations. During the last few months we have received increased numbers of applications for connecting departmental information systems to the network.

Interest is also being shown in the possibilities for international exchange of data. Already five Western European countries have expressed a desire for direct or transit connections between "Bulpak" and their own national data transmission systems. The first international channel has been set up for transmitting data between "Bulpak" and the international center for channel matching [sgovor], which provides an opportunity for the direct exchange of data between Bulgarian and Soviet subscribers, as well as for transit access to Western networks and subscribers. In the future, a direct channel is to be set up for connection to the West German network. If they prove feasible and efficient, international channels are also to be set up to Czechoslovakia, Hungary, Austria, Greece, and other countries.

Of course, not everything is proceeding as quickly and smoothly as we would like, but it is impossible to introduce a completely new type of system without encountering unexpected surprises. Efforts are being made to expand and improve the network facilities, including, for example, providing access to new types of computers and terminals. Work will start on connecting the "Bulpak" and telex networks, so that subscribers will be given new opportunities for setting up more profitable information systems.

Rise in Number of Subscribers

One of the network's four data transmission centers is located in Plovdiv. Lyuben Tsarev, chief of the "Bulpak" Department at the Plovdiv Economic Communications Combine, is a man of few words:

During the experimental period, six subscribers from Plovdiv and Stara Zagora were connected. The results obtained have helped to eliminate additional problems that arose in connection with introducing the system. We are about to take delivery of measuring apparatus that will make it easier to locate and eliminate possible faults.

Subscribers' applications, after obtaining the agreement of the "Communications" Association, completing investigations and carrying out the prescribed measurements and adjustments, are being processed within the stipulated deadline, despite a shortage of staff at the center. Interest in the network is steadily growing. Unfortunately, we are still unable to meet the needs of certain customers for 24-hour operation.

Bulgarian Plans for Improving Radio, TV Networks

4U2308/30188 Sofia POKrLED in Bulgarian No. 34
22 Aug 88, pp 1, 4

[Interview with Georgi Dzhagarov, deputy chairman of the State Council, by Katya Mitova. "Access to Glasnost"—date and place not given]

[Excerpts] Today, when glasnost is being made a basic principle of party and state policy, the importance of radio and television as the most powerful mass information media is continuously growing. However, the consistent application of glasnost is impossible so long as one basic problem remains unsolved, namely, coverage of the whole country with high-quality television and radio signals.

Today we return to these problems in an interview with Georgi Dzhagarov, deputy chairman of the State Council.

[Mitova] Comrade Dzhagarov, why precisely is the Intellectual Development Commission of the National Assembly concerning itself with such a problem, which in essence concerns ideology and culture as much as it does technology and economics?

[Dzhagarov] The broadcasting, transmission, and reception of television and radio programs is a specific form of intercourse between the program creators and their multimillion strong public (not restricted to Bulgaria alone). If we are only interested in the start and the end of the chain, and fail to investigate the effectiveness of the links between them, we run the risk of making our analyses an end in themselves. What is the benefit of a first-class program if it does not reach the viewers and listeners?

However, it turns out that Bulgarian television and radio programs are not accessible to a considerable percentage of the population. In the central Rhodopes, in northwestern Bulgaria, in border regions, and a number of other places "blank areas" still exist that are much bigger than we think, because poor-quality transmissions practically do not reach the people.

The problem is primarily an intellectual and ideological one of national importance, and must therefore be resolved without delay.

[Mitova] Where, in your opinion, do the main difficulties lie, and how can they be overcome?

[Dzhagarov] The difficulties principally stem from the material-technical base, which has not been set up on the basis of proven criteria and is not the result of a uniform nationwide program. Hitherto the facilities have depended to a large extent on the possibilities and level of activity of the local organs of authority, so they have fallen victim to shortsighted locally oriented interests. To avoid repeating the old mistakes or making them worse, we must radically alter the approach, style, and method of work in this sphere.

The material-technical base that provides the public radio and television transmissions requires radical restructuring to update it in accordance with world achievements and trends.

[Mitova] The discussion and implementation of such a program will probably be a lengthy process. While all this is going on, the consequences of the time lost will accumulate. What measures can be taken immediately?

[Dzhagarov] However well we may conceive our prospective all-embracing maximum program, we have no right to turn our backs on the present day, because behind every "blank area" in the country's television and radio coverage lie tens of thousands of people! Given good organization and the will to do it, we can utilize unexploited reserves to implement a very beneficial minimum program.

There are many matters relating to the material-technical base that are fully within the competence of the local municipal authorities, such as radio public address systems, for example. A great number of settlements, located in the very districts where the television and

radio signals are poor or nonexistent, are either not equipped at all, or are only partially equipped with central radio loudspeaker systems, and yet a local radio network can be successfully used as a relay station for Bulgarian radio programs. Furthermore, we also have quite a few powerful district radio stations available that at present exist, more to serve certain people's sense of self-importance than to carry out their true function.

[Mitova] In Sofia in 1986 a general agreement was signed for cooperation of the CEMA member countries in the field of developing communications systems and utilizing artificial satellites. According to the program drawn up under the agreement, after 1992 the socialist countries will be able to use common satellites for broadcasting their own television programs.

What, in your view, are the prospects for Bulgarian satellite television, given the present difficulties in covering the whole country with high-quality television and radio signals?

[Dzhagarov] We cannot seriously think about satellite television unless we solve all the current problems that we have been discussing and unless we improve the material-technical base to a level that enables us to launch ourselves into the television orbit around the earth as an equal partner. However, starting right now, we must define our national strategy, clearly formulate the aims and tasks for the Bulgarian satellite programs, and make an in-depth investigation of the considerable world experience already accumulated. This problem should occupy a central place in our all-embracing program. The same is true of cable television, which, although a very expensive undertaking for the Bulgarian economy, is capable of producing a good return on the money invested in it, especially if it is used for educational purposes.

INTER-AMERICAN

5-Year Caribbean Communications Network Plan Described

55400054 Kingston *THE DAILY GLEANER* in English
11 Jun 88 p 2

[Text] Communication networks in the Caribbean will undergo a major development programme during the next five years. Although the overall cost is not yet known, the Trans-Caribbean Cable System is expected to cost US\$130 million, says Jamintel's President and Chief Executive Officer, Mr. Trevor O. Minott.

"Upgrading and expansion of the networks in countries within the region will result in the continuous introduction of the new services. And over the next few years, services such as electronic mail, enhanced telex, regional paging and videotex, will be commonly available," he said.

Mr. Minott was addressing the opening function of the Caribbean Energy Information Systems (CEIS) meeting/workshop at the Courtleigh Hotel, Trafalgar Road, this week.

The Jamintel chief executive gave a background of the development of the communication industry in the region so far and said that by the end of 1989, a submarine fibre optic cable system called the Trans-Caribbean Cable System, would link Jamaica, Colombia, Dominican Republic and Puerto Rico to the United States of America.

He said further that the Eastern Caribbean digital microwave system which was being constructed to replace the existing analogue system, would form a backbone digital system serving the Eastern Caribbean chain from Tortola through to Trinidad, and the northern terminal in that system would be linked to the Trans-Caribbean System (TCS).

"The expenditure on the TCS alone will be in the region of US\$130 million, and benefits of these two high capacity digital systems will be available to users in all countries of the region," he said.

He explained some of the benefits of the digital system: It offers superior transmission quality throughout the network; usually less expensive on a cost basis when adequately utilised; it can accommodate much larger capacities; its equipment requires less space and less installation time and labour; can provide additional facilities and services to both the user and the carrier; much easier to operate and control; and it provides for future integration of telephony, and other non-voice services leading to an Integrated Services Digital Network.

Mr. Minott said that in the next five-year period the Caribbean region would experience the greatest developmental thrust in the telecommunications field that it had seen in the past 20 years.

"The cost will be great, but the region will benefit in many ways," he added.

In the agriculture, investment and tourism sectors where modernisation and expansions were taking place, the requirement was for reliable and rapid means of communication, if efficiency was to be maintained.

The meeting/workshop is the first to be held by the 14-month old CEIS, and was organised by the Scientific Research Council. It is being sponsored by the Commonwealth Science Council, the International Development Research and UNESCO.

The agenda was also to deal with privatisation of the Energy Information Systems, a talk by Mr. John Sherwood, Information Consultant at UNESCO; a report on the present status of the CEIS by the project manager, Mrs. Monica Whyte; data-base requirements and the type of communication and communication equipment to be used in the system.

The workshop ended Friday.

/06662

BARBADOS

ITU Helping With Computer Technology for Broadcasting

55400056 Bridgetown *WEEKEND NATION* in English
15-16 Jul 88 p 3

[Text] Control of Barbados' radio and television frequencies could soon be made easier with computer technology.

Deputy Secretary General of International Telecommunications Union, Jean Jipguep is currently in Barbados to meet with top Government officials over the setting up of a \$500,000 project involving the use of computer technology to effect the control.

Jipguep, who arrived in Barbados yesterday, told a Press conference the discussions would also focus on three regional projects costing in excess of \$6 million.

One of them, now in its preliminary stage, will provide for institutional strengthening of telecommunications in the region.

The main objective of that project is to revise and update the telecommunications regulations. It will also look at the legislative aspect and define goals, objectives and policies for the telecommunications sector and also the management of radio frequencies.

The Caribbean Telecommunications feasibility study arising out of the Antigua summit will also be discussed, the UN official said.

This involves the design of a satellite to carry telecommunication traffic generated by regional states as well as the establishment of a regional data bank.

/08309

JAMAICA

Opposition Leader Sets Out Broadcasting Policy Views

55400055 Kingston *THE DAILY GLEANER* in English
19 Jul 88 p 14

[Text] Christiana, Manchester: President of the People's National Party, Mr Michael Manley proposes to bring about changes in the financing and management of the Jamaica Broadcasting Corporation (JBC), should his party form the next government.

Speaking at a PNP forum at the Astra Hotel in Mandeville recently, Mr Manley said the JBC would be subsidised annually for a five-years trial period. Also, the management would be structured on lines similar to the electoral committee where people who are nominated by both political parties, will form a boards of director. This board, Mr Manley pointed out, will have to agree on a number of distinguished independent people who will have the control and symbol of public respect to ensure that no political manipulation takes place either in favour of government or opposition.

With this system in place, he said, the JBC would develop public confidence. The law will also make it clear that the minister responsible for media publicity will have no power in directing the JBC.

Currently, the JBC had lost its credibility, Mr Manley said, as it has not lived up to the idea of political impartiality in the dissemination of news. The party president further said that the JBC was not giving the PNP coverage in certain areas.

Looking at television, Mr Manley said the PNP had no objection to a religious channel or a religious station. However, a future PNP administration would only pursue this when the Jamaica Council of Churches, the Evangelicals and other established religious groups agreed on the form of religious broadcasting.

Mr Manley warned that he would not accept, and if necessary, would reverse any attempt to get outside religious groups to take over religious broadcasting in Jamaica. He also suggested that this issue should not be decided until after the election.

Speaking broadly of government administration, Mr Manley said a future PNP administration would adopt the strictest rules of efficiency and accountability and sound business principles. Consequently, he said that no economic activity would be implemented by the PNP that would take on the characteristic of work-days.

Mr Manley pointed out that all such enterprises will have to prove their worth in efficiency.

/9604

AFGHANISTAN

Communication Services Expanded

*55004712 Kabul THE KABUL TIMES in English
4 May 88 p 4*

[Text] Six hundred and sixty million Afs was earned last Afghan year (ended March 19, 1988) by the communications department showing an increase of 10 percent over previous year.

A spokesman said that the number of lines were expanded last year from 28,600 to 20,100 in automatic telephone units and the number of wireless units increased from 235 to 256. TV relay units were installed in Baghlan, Kunduz, Jauzjan and Ninroz provinces.

[A total of] 1,100 telephones, 600 of them automatic, will be installed in the current Afghan year in the capital and provinces. Thirty three wireless communication units and four TV transmitting units will be installed in Takhar, Uruzgan and Badghis provinces. Radio broadcasting units will be installed in Spinboldak, Torkham and Barikot district and Bamian province.—BIA

/06662

INDIA

INSAT-1C To Launch From French Guiana 22 July

*BK1707161788 Delhi Domestic Service in English
1530 GMT 17 Jul 88*

[Text] The Indian national satellite—INSAT-1C—will be launched from Kourou Island in French Guiana in the early hours of Friday [22 July]. The satellite will be an in-orbit companion for INSAT-1B and will carry a payload for television, telecommunication, and weather forecast.

The space commission chairman, Professor U. R. Rao, told our Bangalore correspondent that the Indian-built INSAT-1C will be hoisted into its geostationary orbit by the European Space Agency's Ariane-3 rocket. The satellite has already been mated with the Ariane launch vehicle and is now undergoing checks by ISRO [Indian Space Research Organization] and Ariane scientists.

Prof Rao denied reports appearing in a section of the press that Sriharikota station is not suitable for space-craft launching. He said the preliminary report on the cause of the failure of the Augmented Satellite Launch Vehicle—ASI V-D2—will be available within a week.

INSAT-1C Launched From French Guiana

*BK2207030988 Delhi Domestic Service in English
0240 GMT 22 Jul 88*

[Text] The multipurpose Indian national satellite INSAT-1C was launched into space without a hitch early this morning by the Ariane-3 rocket of the European Space Agency. The rocket carrying the 1,190 kg satellite blasted off from Kourou in French Guiana on the northeastern coast of South America at 0442 hours Indian Standard Time. Overcast sky and intermittent rain could not delay the much-awaited launching which came exactly on schedule.

The rocket lifted off into the night sky and its brilliant orange flame was obscured by the low clouds moments after takeoff. The control room, 5 km away from the launching pad, echoed with the blast as the voice of the mission director, Mr Y. (Gerang), came over the speaker announcing the liftoff 3.5 seconds after the fourth engine of the first stage gently lifted the giant 240-ton rocket.

The Ariane rocket also carried a European communications satellite ECS-5 as copassenger of the Indian satellite. The separation of INSAT-1C satellite came exactly 18 minutes after liftoff.

Our correspondent Shreshtha Chandrika, reporting from the Bangalore headquarters of the Indian Space Research Organization, ISRO, said on-orbit maneuvers of INSAT-1C have just started. The master control facility at Hassan in Karnataka recorded the first telemetry signal within 28 minutes after the blastoff. INSAT-1C is expected to reach its assigned slot in a geostationary orbit about 35,000 km above the earth in a week's time. It will be put into operational use sometime in September.

The satellite will be put into use for television, telecommunications, and meteorological services. An ISRO team and a team of the Ford Aerospace Corporation of the United States, which built INSAT-1C, will together conduct the post-launch maneuvers.

INSAT-1C is expected to last for 10 years instead of the 7 years for INSAT-1B. Dr Pramod Karle, who is heading the Indian team of scientists to coordinate the launch, said the extra life is a direct result of launching it from Kourou which lies about at the equator, hence geographically advantageous.

All the three communication satellites launched so far under INSAT-1 system were built by the American corporation. The first in series, INSAT-1A, failed to operate within weeks after its launch in April 1982. INSAT-1B was successfully launched the following year.

INSAT-1C is second Indian spacecraft launched from the European Space Agency's Guiana Space Center at Kourou after APPLE, an experimental communications satellite launched in 1981.

Solar Panels, Antenna Deployed
BK2207070488 Delhi Domestic Service in English
0630 GMT 22 Jul 88

[Text] Within hours of the launch of INSAT-IC satellite, the Indian space scientists have successfully deployed two of its five solar panels and a C-band antenna. As reported earlier, the 1,190 kg satellite was launched from Kourou in French Guiana by the Ariane-3 rocket early this morning.

The separation of INSAT-IC took place over Africa and the first telemetry signal was received by the master control facility at Hassan within 28 minutes of the blastoff. The C-band antenna and the two solar panels were then released without any hitch.

ISRO sources in Bangalore said the health of the satellite is fine and its response to commands is perfect. In a next major operation to be carried out around 0700 on Monday [25 July], the master control facility will fire the satellite's piggyback motor to take it closer to the final geostationary orbit.

INSAT-1C Moves Into Intermediate Orbit
BK2307095988 Delhi Domestic Service in English
0830 GMT 23 Jul 88

[Text] The Indian National Satellite, INSAT-1C, yesterday [as heard] stepped closer to its abode in space with the successful firing of the first apogee motor to raise its orbit. The Indian Space Research Organization, ISRO, announced in Bangalore that the satellite launched yesterday from Kourou in French Guiana has moved into the intermediate orbit in space. It was done by a crucial maneuver by the master control facility at Hassan in the early hours of this morning. A joint team of space scientists from ISRO and Ford Aerospace commanded the satellite to fire the first apogee motor for nearly 24 minutes.

According to ISRO, the response of the spacecraft is perfect and it is functioning normally. The spacecraft is currently orbiting the earth at a distance of about 8,000 km.

AIR correspondent Shesha Chandrika reports from Bangalore that 2 more apogee motors will be fired in the next 2 days to put the satellite at 94.5 degrees east longitude in geostationary orbit.

Satellite Reaches Geosynchronous Orbit
BK2507111588 Delhi General Overseas Service in English
1000 GMT 25 Jul 88

[Text] India's multipurpose satellite, INSAT-1C, has reached geosynchronous orbit at a distance of 36,000 km above the earth. A team of scientists of the master control facility in Hassan, in the southern state of Karnataka, today successfully carried out the third apogee motor firing to put the satellite in orbit.

The inclination of the 1,190 kg satellite has also been brought down to just about 0.2 degrees as compared to 7 degrees at the time of its launching. The INSAT-1C is now at 102 degrees east longitude and drifting toward its final position at a rate of 2.5 degrees every day. Only small trimmings now will put the satellite in its design slot.

According to Indian Space Research Organization sources, the satellite is in perfect condition and the deployment of its second antenna and the solar panel will be completed in the next 2 or 3 days.

INSAT-1C Satellite's Solar Power Pack Fails
BK0108031288 Delhi Domestic Service in English
0240 GMT 1 Aug 88

[Text] The INSAT-1C has developed a snag. There has been a breakdown in one of its solar power packs since Friday [29 July]. According to the Indian Space Research Organization, scientists are now analyzing the problem after placing the spacecraft in the sun-equilibrium configuration.

This position will allow the scientists to make a detailed analysis of the problem. Corrective measures will be taken after analyzing the results. This will take about 4 to 5 days. Detailed study of the payloads on board the craft has been temporarily suspended.

INSAT-1C was launched from Kourou Islands in French Guiana on the 22d of last month.

Augmented Satellite Launch Vehicle Mission Fails
BK1307124188 Delhi Domestic Service in English
1230 GMT 13 Jul 88

[Text] The Augmented Satellite Launch Vehicle mission to put the Rohini satellite into orbit has failed. Soon after the blast off this afternoon, the chairman of the Indian Space Research Organization, Professor U. R. Rao, told a news conference in Sriharikota that some abnormality was noticed in the motor after the first stage of ignition. The initial blast off was, however, perfect.

Dr Rao said the details of the tracking at various stations and the recorded material at Sriharikota have to be seen before arriving at a conclusion about the cause of the mission's failure.

During the final countdown there were two holdups of 10 minutes each. Three minutes thirty seconds after a perfect lift off, the control center lost telemetry tracking of the vehicle, following which radio links were lost giving rise to suspicion about the mission's success. The signal, scheduled for 12 minutes after takeoff, which would have meant successful placement of the Rohini satellite in orbit, did not come.

More on Failed Mission

BK1307160888 Delhi Domestic Service in English
1530 GMT 13 Jul 88

[Excerpts] The Augmented Satellite Launch Vehicle [ASLV] D2 mission to put the Rohini satellite into orbit has failed. Soon after the blast off at about 1450 this afternoon [0920 GMT], the chairman of the Indian Space Research Organization, Professor U. R. Rao, told a news conference at Sriharikota that some abnormality was noticed in the motor after the first stage of ignition. This was the second ASLV failure. The first ASLV test in March last year failed when the rocket fell into the sea due to non-ignition of the first stage motor.

The ASLV-D2 weighing 40 tons and 24 meters tall was to put into near circular orbit the stretched 140 kilogram Rohini satellite 400 kilometers above the earth. The satellite was carrying two payloads including one for studying the burst of celestial gamma rays.

Professor Rao said the defects noted in the ASLV-D2 mission will be corrected in the next project. He said failure of this mission will not affect other on-going programs. The cost of the rocket was 6.5 crore rupees and the satellite 2 crores. He ruled out the possibility of salvaging the rocket and the satellite from the Bay of Bengal.

Papers Report Progress in Indian Satellite Program

Planned, Past Launchings
55500133 Calcutta THE TELEGRAPH in English
10 Jun 88 p 5

[Text] New Delhi, 9 June (UNI)—The second development flight of the ASLV scheduled for later this month will be followed by two more ASLV launches by 1990.

Further plans include a Polar SLV (PSLV) which will have two solid and two liquid propellant stages along with six solid rocket boosters, and a Geostationary SLV (GSLV). Four launches of each have been planned by 1995.

India would [be] capable of launching its own remote sensing satellite in 1990. It will develop its own launch vehicle technology as also a second generation satellite, Insat-2, which is due to be launched in 1990.

This is in spite of the restrictions placed by the seven-nation guidelines on the export of equipment and technology related to launched vehicles with a range of more than 300 km.

Space specialists of the West have been laying stress on the military implication of India's space programme though they agree that no political decisions in this regard have yet been taken by the Indian government.

India has, however, repeatedly reaffirmed the peaceful uses of space. But defence experts maintain that within 6 months of political decision, the SLV-3 satellite booster could easily be redesigned into an intermediate-range ballistic missile (IRBM).

As early as November 1978 Prof Satis Dhawan then chairman of the India Space Commission, had told a meeting of the parliamentary consultative committee on atomic energy, space and electronics, that India's space agencies had the capability of building IRBM's. It was estimated that these would be of the range of about 1,500 km.

The first indigenously-designed 35-kg satellite Rohini-I was successfully blasted off using India's own satellite launch vehicle, SLV-3, in July 1980.

Unfortunately, the 39-tonne five-stage Augmented Satellite Launch Vehicle (ASLV) carrying a payload of 150 kg, launched in March 1987 failed. But Indian scientists felt the country had already gone beyond the capability of launching intermediate range ballistic missiles.

It is believed that the mesosphere-stratosphere-troposphere radar (MST radar), to be set up near Tirupati, would give India the capability to launch Inter-Continental Ballistic Missiles.

India has shown the greatest advancement among developing countries by successfully launching two satellites.

Polar Satellite Launch Vehicle
55500133 Madras THE HINDU in English
6 Jun 88 p 9

[Text] Madras, 5 June—An important "milestone test" was accomplished in the development of the ISRO's Polar Satellite Launch Vehicle (PSLV) on 3 June at SHAR (Sriharikota) centre.

According to informed sources, the milestone test involved checking the thrust vector control system and the test was successful. The test involves injecting the propellant into the exhaust gas from the rocket. As the solid rocket fires, the liquid propellant is injected through nozzle ports. When the propellant comes into contact with the exhaust gas, a side-thrust is produced, resulting in the entire exhaust jet getting deflected. This, in turn, deflected the attitude of the rocket. This ground test was conducted at SHAR.

The thrust vector control system was developed by a team under Mr Sridharan Dhas, one of the group directors of the Liquid Propulsion Systems Centre of the ISRO. The team concerning the rocket and nozzle was led by Dr Rajaram Nagappa of the solid motor project. The propellant was manufactured at the Solid Propellant

Space Booster Plant at SHAR under the guidance of Mr M.C. Uttam. The test was organised and carried out by Mr M. Annamalai of STEX (Static Test and Evaluation Complex).

The PSLV is being developed to launch the country's remote-sensing satellites into a polar sun-synchronous orbit. It makes use of both solid and liquid propulsion stages to generate adequate thrust and control capabilities to place a 1,000 kg satellite into orbit at an altitude of about 1,000 km.

System development stage: According to ISRO sources, the PSLV project had already entered the system development phase. Fabrication of prototype hardware for most of the systems like maraging steel motor cases for the first stage solid motor, liquid engine for the second stage, proto-case for the third stage solid motor and realisation of initial hardware for the fourth stage liquid engine had been accomplished. The development models of the Redundant Strap Down Inertial Navigation System (RESINS) and the Stabilised Platform Inertial Navigation System (SPINS) were in an advanced stage of completion.

The liquid engine for the second stage was tested at Mahendragiri complex in Tamil Nadu about 2 months back and the test was successful. It was also a milestone test. The PSLV would be launched from SHAR in 1989.

Satellite Rescue System
55500133 New Delhi PATRIOT in English
17 Jun 88 p 5

[Text] A Satellite-Aided Search and Rescue (SASR) system intended to locate vehicles in distress on land, sea and air will become operational next year, the space department has said, reports PTI.

The first Local User Terminal (LUT), a ground station designed to pick up signals relayed by satellites will be commissioned in Bangalore in mid-1989, according to a newsletter from the space applications Centre (SAC), Ahmedabad.

The SASR programme will initially rely on an international satellite network called COSPAS-SARSAT but in its second phase will make use of INSAT-II series, India's second generation satellites.

The COSPAS-SARSAT system is a series of satellites, operated jointly by the United States, the Soviet Union, Canada and France, used for sea and rescue services.

In the event of an emergency beacons, activated abroad a vehicle like a ship or an aircraft will transmit signals to satellites which will relay them to a ground based LUT and thus help initiate action for rescue.

The Bangalore LUT, the first COSPAS-SARSAT link in South Asia, will help cover most of peninsular India and a large part of the Indian Ocean.

A second LUT to be established in Lucknow will facilitate improved coverage of north India particularly the Himalayan region, the SAC newsletter said.

Work is underway at the SAC to develop payloads to be sent aboard INSAT TT satellites that will help immediate detection of distress signals of the 406 MHZ frequency band.

The beacons on the INSAT II satellites will provide the only continuous monitoring facility for the region on this frequency.

The Bangalore LUT which will be capable of receiving alert signals on three frequency bands will also have a colocated mission control centre and that will interface with Indian Rescue Coordination Centre.

/12232

Transmitters To Counter Pakistan Television 'Invasion'

55500132 New Delhi PATRIOT in English
13 Jun 88 p 1

[Article by Vineet Dikshit: "Invasion" by Pak TV Counter[er]]

[Text] Three high power TV transmitters with an effective range of about 140 km each have been sanctioned by Doordarshan for the border areas of Rajasthan and Gujarat to counter the interference of television signals from Pakistan TV.

They will be installed in Jaisalmer, Barmer and Bhuj. With a power of 20 KW each, and to be set up atop 300-metre high steel masts, the transmitters are the highest in the country. At present only the Bombay TV tower is 300 metres high.

All the three transmitters are expected to effectively counter the 'invasion of Pak-TV.' Till now all of Doordarshan's low power relays to the border areas have been 'overrun' by the television signals from Pakistan. Both India and Pakistan use Phase Alternation Line-B (PAL) system for television transmission.

Apart from these relays in Rajasthan and Gujarat, another high power relay with a 300-metre tall mast is to be set up in Rameshwaram in Tamilnadu. This transmitter is expected to cater to the growing needs of the IPKF in Sri Lanka since there is no facility to provide Doordarshan programmes across the Palk Strait. Currently All India Radio is beaming a 6-hourly radio transmission to IPKF target area to provide home programming.

Though the Centre has decided to set up high power relays in the Western border areas, two key areas have been left out where interference from across the border has increased in the recent times. Earlier this year, Poonch and Rajouri areas in Jammu and Kashmir were blocked by TV relay in Mirpur in Occupied Kashmir.

The usage of the entire radio spectrum, in particular the television section is supervised by the International Frequency Registration Board (IFRB) which allots various slots and books them for all the member countries.

Senior Doordarshan officials say that even after conforming to ITU radio regulations, many member countries do interfere into each other's programmes. This can be combated only by overriding the jammer with a more powerful signal.

/12232

Plan To Produce Indigenously Developed Optical Fibers

55500131 New Delhi PATRIOT in English
15 Jun 88 p 5

[Text] Optical fibres that carry information on beams of light will soon be manufactured in India and spark a revolution in the country's telephone, data and video communication, reports PTI.

The hair thin glass wires will be manufactured at the Hindustan Cables Limited factory at Neini, near Allahabad which has been licensed to manufacture 40,000 km of optical fibres each year.

Sources in the Department of Science and Technology said the technology advance will boost the data rates flashing through fibres already in place, saving cable installation costs.

The HCL pilot plant at Hyderabad had already started producing optical fibre cables for testing.

Scientists of the Central Glass and Ceramic Research Institute in Calcutta which have developed the optical fibres indigenously say manufacturing these hair thin strands of glass demands superclean plants and ultra pure raw materials.

Before you enter the production area, machines whisk dirt from our shoes, sticky floor mats capture dust and materials are checked for contaminants in parts per billion, according to them.

They say to make optical fibres, two glasses with different properties are combined to form a Centre core and surrounding cladding that traps light by reflection.

At the Hyderabad pilot plant, fibres start gas-glass rods rotating on a lathe within a sealed chamber. Ultrapure gases that contain silicon and germanium are fed through a flame, spraying the rod with a white soot that builds up as thin layers of glass.

The scientists of the Hindustan Cables Ltd say when the germanium vapor is shut off, an undoped layer of glass forms the outside cladding.

The cylinder is then fired in a furnace to produce a highly transparent glass blank called a preform, from which fibres are drawn.

The scientists say the glass is so pure that the light must pass through nearly 14 miles of it before its intensity is halved. In comparison, 10 feet of high-quality optical glass and 1 inch of window glass will halve light intensity.

Scientists say in Japan, Europe, the United States and elsewhere, experimental two way fibre systems have fed information directly into homes. One pair of fibres in such a system can provide a household with phone and cable-TV service, plus tele-banking and video shopping.

Such cable shopping services may one day let people purchase music and video recordings transmitted to home recorder in seconds, they said. [sentence as received]

Among the advances influencing this revolution are ultraclear glass, advanced lasers and super-capacity networks.

The idea of communicating by light emerged about a hundred years ago. However, it was like many other ideas that emerge to be used when other developments in technology make these a reality.

People who had experimented with some sort of an optical communication include Alexander Graham Bell of USA and John Tyndall and Charles Boys of England.

The first half of the 20th century optical communications were used only on a small scale in mobile low bandwidth and short-distance communication links.

However, the situation changed rapidly with the invention of lasers in 1960. The availability of coherent light greatly stimulated research in optical communication, the scientists added.

/12232

Trivandrum-Cochin TV Link

BK2208044588 Delhi Doordarshan Television Network in English 1600 GMT 21 Aug 88

[Excerpt] Microwave link between Trivandrum and Cochin enabling relay transmission of Doordarshan programs was commissioned this evening at Cochin by the

vice president, Dr Shankar Dayal Sharma. With this, half of the population of the [Kerala] State would be able to view Malayalam programs originating from Trivandrum. Speaking on the occasion, the vice president said that Doordarshan should be the main link in promoting unity and integrity of the nation.

Air Decides Against Overseas Relay Stations

55004713 New Delhi PATRIOT in English
19 May 88 p 1

[Article by Vineet Dikshit]

[Text] An ambitious plan of All India Radio to establish four overseas relay stations has been aborted after three years of extensive research and planning.

First mooted in 1985, the necessity for a scheme to have foreign transmitting facilities was greatly felt after it became evident that signals of AIR General Overseas Service were not reaching many target areas.

The sites earmarked for distant relay stations included Cuba, Ghana, Malaysia and South Korea. The areas they were supposed to serve were North and South America, West and North Africa, Australia and the Far East.

The study undertaken by the AIR was apparently left mid-way when the authorities could not reach a decisive stage for overseas relay stations.

Director General of AIR Amrit Rao Shinde, while commenting on the aborted plans, said, "there were lot of complications involved in this kind of project. Firstly, we could not decide as to what method to adopt for relaying our signal". Besides, such a facility required close coordination and political will between two nations, Mr Shinde added.

When asked at what level the ambitious scheme was abandoned, Mr Shinde said that it never reached the higher political stage as details and other logistical areas of the plan were never given a final shape. However, he added, that AIR hoped to reopen this scheme in the future.

Apart from the problem of poor quality of AIR's signal to distant target areas. The level of interference from Radio Pakistan specially in border districts, Radio Beijing, BBC and Radio Moscow into the medium and short wave programming has picked up in recent times.

To offset these, Mr Shinde added, all the ageing stations are to be upgraded.

/9274

Minister Explains AIR Network Expansion Plan

BK2107044888 Delhi Domestic Service in English
1530 GMT 20 Jul 88

[Text] AIR's network will become the largest domestic broadcasting service in the world with the completion of the seventh plan schemes. It will have more than 200 stations and over 300 transmitters covering 97 of the population and 91 percent area of the country. This was disclosed by the minister for information and broadcasting, Mr H. K. L. Bhagat, at the parliamentary consultative committee meeting of his ministry in New Delhi today. Mr Bhagat said 19 new FM radio stations will be ready by March next year. Installation of 56 new local stations will commence during 1989-90 and most of these will be completed by March 1990. The minister announced that a committee will be set up under the chairmanship of the secretary of the ministry to review the format of AIR programs and the news organization. He dispelled misgivings expressed by some members about AIR's credibility and said the government is seized of the matter of giving more functional autonomy to both AIR and Doordarshan. He said AIR enjoys credibility because of its long record of useful service. Mr Bhagat refuted the allegation of some members that AIR was partisan. He quoted facts and figures to show that opposition parties got due coverage in national news. He said the chief ministers of Kerala and West Bengal got much more news coverage than all other chief ministers.

Indian Telephone Seeks Micron Chip Technology

55500140 Madras THE HINDU in English
20 Jun 88 p 9

[Text] New Delhi, June 19—The Indian Telephone Industries (ITI), Bangalore, has sought transfer of know-how of microelectronic chip technology which aims at component integration of 1.5 micron level from an American company called the VLSI Technology Incorporated (VTI), San Jose, California. The board of the ITI has recently approved an investment of Rs. 19.5 crores towards the project of which Rs. 9 crores will be used towards imports.

One micron is a tenthousandth of a cm. and 1.5 micron technology implies that at this level of integration of circuits on the silicon chip each component will have dimensions roughly of this order. Such high level integration corresponds to somewhat beyond what is termed as Very Large Scale Integration (VLSI) of microelectronic circuits. The regime of VLSI begins at about 2-2.5 micron level of integration. VLSI corresponds to integration of close to about a million components on a standard-sized semiconductor chip. When the 1.5 micron technology becomes available the ITI expects to be able to fabricate devices for defence applications, digital devices for cipher codes, echo cancellors for telecommunication etc.

At present the country has chip fabrication capability at 3 micron and 3 micron level at the Bharat Electronics Ltd. (BEL), for predominantly bipolar devices and a small quantity of Metal-Oxide Semiconductor (MOS) devices, at the ITI and at the Semiconductor Complex Ltd. (SCL), Chandigarh, for MOS circuitry alone. Microelectronics production in India amounts to only 0.6 per cent of the total Indian electronics industry production and this is about Rs. 8 crores a year.

Rs. 1000-Crore Target

The target set for the year 1995 is Rs. 1000 crores a year. The Application Specific Integrated Circuits (ASICs) are the fastest growing segment of the microelectronics family and ASICs, which are ideally suited for low volume production and are known to provide a competitive edge in both cost and functionality. India has hardly made an entry into the production of VLSI ASICs. Production for 1988 has been estimated at Rs. 0.5 crore which, according to experts, should be at the level of Rs. 2.5 crores for an electronics systems market of Rs. 75 crores.

Having procured the 5 micron technology from the AMI, USA, the SCL had upgraded it to 3 micron level on its own. But for going to 2 micron level, which marks a qualitative change in technology, the SCL has sought import of technology from the AMI and there is already an approval from the Union Cabinet for it. The SCL was expected to have commenced commercial production of locally designed 2 micron devices by the first quarter of 1988. Apparently, a suggestion has recently been made by the SCL to the Electronics Commission for transfer of 2 micron technology to the ITI.

Two Approaches

However, the ITI has preferred to go in for collaboration with the VTI on two counts. One, the SCL apparently only has a pilot plant level technology which is yet to be proven and, two, the SCL technology is a single-level metal integration, which the ITI believes to be severely restrictive, whereas the VTI technology is supposed to be of two-level metal integration kind. In the world of semiconductor industry there are arguments both for and against the two approaches and firms of each kind claim that their approach is superior.

Like the SCL, though there will be a limited custom-design capability, the technology at the ITI will be largely geared to "gate-array" and "standard cell"-based semi-custom design approach to the designing of circuits. In particular, the ITI will focus on ASICs which by their very nature are suited to low volume production. The ITI will act as a prototyping foundry and it envisages that the SCL could act as a scale up production unit for these prototyped designs. When Mr. Nambiar was asked how the DoE planned to ensure this in view of the SCL being not so much engaged in productionising others'

designs, he said the SCL being an undertaking under the DoE, the Department should take the responsibility for the country to achieve targets in the production of microelectronic devices.

The Secretary of the Department of Electronics, Mr. K. P. P. Nambiar, said the Department was aware of the ITI proposal and would grant licence for import of technology as soon as the application was received. Asked about the chances of export licence being granted for this advanced technology by the US Department of Commerce (US-DoC), Mr. Nambiar said the American firm was confident that the export clearance would be granted.

/6091

IRAN

Abadeh Transmitter Becomes Operational
NC2706084988 Tehran Domestic Service in Persian
0330 GMT 27 Jun 88

[Summary] The 10-kw Abadeh transmitter has become operational, and Abadeh residents can now hear the programs of the Voice of the Islamic Republic of Iran and of Shiraz radio on mw 1485 khz. The transmitter was built by radio transmitter engineers and technicians of Shiraz. The Abadeh radio will relay programs of the Voice of the Islamic Republic of Iran and of Shiraz radio from 0600 [0230 GMT] to the end of the 2000 [1630 GMT] newscast.

Yasuj Transmitter Begins Operations
SS004716 Tehran ETTELA'AT in Persian 17 Jul 88 p 4

[Text] Yasuj—The Yasuj Center transmitter of the second network of the Vision of the Islamic Republic of Iran, with a strength of 50 watts, became operational yesterday morning. According to the central news unit, the work to put this transmitter in operation was accomplished due to the efforts of the personnel of the Shiraz Center transmission unit, with the installation of ten antennas on a 36-meter mast on the heights of Yasuj. From now on, the inhabitants of this city can watch the programs of the second network of the Vision on channel eleven.

Shahrud Radio Transmitter Station Inaugurated
SS004715 Tehran ETTELA'AT in Persian 11 Jul 88 p 4

[Text] Semnan—Due to the dedication and efforts of the country's radio network expansion unit, the installation of the one kilowatt medium wave radio transmission station in Shahrud has now been completed. Yesterday afternoon, in the presence of the technical assistance department personnel of the Voice and Vision of the Islamic Republic, the Friday Imam of Shahrud, the governor-general and several other dignitaries, the station was inaugurated and became operational. As reported by the Central News Unit, taking advantage of

this transmitter that will cover a radius of approximately 40 kilometers, from now on the programs of the Islamic Republic of Iran will be broadcast on a frequency of 1548 meters for the inhabitants of Shahrood city region.

Mianeh Transmitter Begins Operations
55004717 Tehran ETTELA'AT in Persian 24 Jul 88 p 4

[Text] Tabriz-The Mianeh district one kilowatt FM transmitter was inaugurated and has become operational. According to the Islamic Republic News Agency, the telecast facilities for Maman village, a dependency of Mianeh district, were also installed and became operational, providing service to the Mianeh dependencies. Fortified with the programs of the first network of the Vision of the Islamic Republic of Iran, it has a strength of 10 watts. From now on, the inhabitants of the villages under this coverage, can benefit from the programs of the Vision of the Islamic Republic of Iran on television channel 8. It should be mentioned that the expenses connected with the construction work and securing of electricity for this machine, amounting to 15 million rials, have been provided by the inhabitants of this village.

Second Network Transmitter Operational
NC2107095988 Tehran Domestic Service in Persian 0330 GMT 17 Jul 88

[Text] Yasuj Television Transmitter—The Central News Unit reports that the 50-watt Second Network transmitter of the Vision of the Islamic Republic of Iran became

operational in Yasuj. With the operation of this transmitter, the residents of Yasuj can now view the Second Network television programs on Channel 11.

ISRAEL

Israel Radio Trims Foreign Language Programs
T40307080888 Jerusalem THE JERUSALEM POST in English 3 Jul 88 p 4

[Excerpt] With the exception of English and French, foreign language programmes are to be removed from day-time slots on Israel Radio. The new policy becomes effective today.

According to Victor Grajewski, head of Israel Radio's external services and broadcasts for immigrants, programmes intended for new immigrants are not as effective in the day-time hours as they are at night.

First thing in the morning, he said, people are more inclined to tune in to Hebrew news broadcasts.

The restructuring has made it necessary for some of the foreign language units to find a more compact way of packing news and vital information for immigrants into severely limited air time. The foreign language broadcasts in 12 languages including Yiddish, Moroccan Arabic (Moghrabi) and Ladino, which together with Hebrew are regarded as the traditional languages of the Jewish people, begin at 19.00 and conclude at 22.00.

As for broadcasts to listeners overseas, easy Hebrew has been dropped from the schedule and, from Sunday, will be replaced by broadcasts in Yiddish.

EUROPEAN AFFAIRS

European Companies Calling for Telecom Standards

5500a042 Amsterdam COMPUTABLE in Dutch
4 Mar 88 p 17

[Article: "High-Tech Companies Warn the Commission"]

[Text] Brussels—Twelve large European computer companies are warning the European Commission against a competition policy that would thwart the extensive cooperation between European companies that is necessary to face Asian and U.S. competition. The warning follows the Commission's intention to create a free internal market by 1992.

The companies—including Philips, Thomson, Bull, and Siemens—believe it to be very important that EEC standards, for telecommunications in particular, be accepted before 1992. They call for the soonest possible elimination of still existing national standards, which would make international trade within the European Community impossible, according to spokesmen.

The discussion centers on the difficulties brought on by international mergers. "Even without these difficulties, we have plenty of problems," the companies declared. They also argue in favor of the extension of research activities within the scope of the Framework Program saying cooperation among European companies would be desirable, especially in data communications and telecommunications.

In this respect, the companies reemphasized that the monopoly rights of telecommunications companies should soon be curtailed. In their opinion, telecommunications activities should be coordinated at the Community level. The companies prefer a new European telecommunications model, which would guarantee that the fast-growing market for business information transmission via telephone lines would be open to competition.

25063

DENMARK

ISDN Standard System To Have European Premier in Country

55002464a Copenhagen BERLINGSKE TIDENDE in Danish 26 May 88 Sect III p 24

[Article by Henrik Damm]

[Text] In the coming months, KTAS and Siemens will introduce the entire telecommunications system to 250 Danish businesses. Data, telecommunications, text and pictures will be combined into one service.

The telecommunications system of the future, based on the so-called ISDN-standard, was introduced publicly for the first time yesterday. In the months to come, the Sealand telephone company KTAS and the West German computer company Siemens will present the possibilities for Danish business. ISDN is an acronym for Integrated Services Digital Network which is, simply speaking, a system that makes it possible to transmit speech (telephony), text, data and pictures through the same connection, for example, picture telephones.

ISDN is not yet a worldwide standard system but it is expected that the system KTAS and Siemens, as well as the Swedish company Ericsson, are now introducing comes very close to establishing a worldwide standard. The new system is conceived to be a worldwide communications network where everybody can speak freely with others on the same terms. In its first round, KTAS expects to be able to live up to the expectations posed by the EC commission regarding the expansion of the network. That means that by 1993, when implementation has been completed on the inner market, we will have added about 60,000 subscribers in the KTAS area alone. The plan is for around 120,000 subscribers nationwide. Old subscribers, who can subscribe to the network but do not want to, do not have to worry. In connection with the construction of the ISDN, so-called bridges are created from the existing services to the new ones. ISDN is in fact a reality. In Japan, the 25 largest cities are already subscribers, and during the next 3 years, the entire Japanese community will be connected through the integrated communications system.

The advantage of ISDN is, among others, that the speed of transmission becomes enormous. It becomes faster and faster, and as a result, it should become cheaper to utilize the telecommunications system.

9583

Communications Firm Reduces Expectations for Net

55002464b Copenhagen BERLINGSKE TIDENDE in Danish 30 Dec 87 Sect III p 3

[Article by Kaj Skaaning: "Teledata Lowers Expectations"]

[Text] The new Teledata goes on the air 1 February but high expectations about a large number of subscribers did not come to pass.

"We will have to lower our expectations somewhat," says Palle Poulsen of KTAS's Teledata.

"Earlier optimistic expectations about a large number of subscribers did not materialize. It is correct that at the introduction of the new Teledata, we expected 15,000 subscribers in the period of 2 years. A figure somewhere between 3,000 and 6,000 is more realistic. We have also said that we should have 100,000 subscribers at the end

of the eighties. Whether that will happen, I dare not predict. We are now going to use the next 5 years for targeted marketing in the trade and industrial sector, and we hope that the private sector will follow," Palle Poulsen tells BERLINGSKE TIDENDE.

It is, however, definite that the new Teledata will go on the air on 1 February after 4 month's delay. The program error that delayed the project is now almost corrected.

"During the first half of January, we will send out notices to the approximately 200 new and 1,400 current users we have on our list. We are inundated with applications from interested people. We receive about 10-20 applications each day," says Palle Poulsen.

9583

FEDERAL REPUBLIC OF GERMANY

Soviet Envoy Acts To 'Quell Fears' on Satellite
LD1908121688 Hamburg DPA in German
1053 GMT 19 Aug 88

[Excerpt] Bonn (DPA)—The Soviet Union has acted to quell fears that its marine observation satellite "Cosmos 1900" equipped with a nuclear reactor represents a danger of radiation. There is no radio contact with the satellite but it is able to continue its set orbit according to plan until October. Leonid Valevich, space expert and first secretary at the Soviet Embassy in Bonn, gave this assurance to journalists in Bonn today.

By October the satellite will have gradually come down to a height of 120 km. The nuclear reactor will then be brought into an 800-km orbit by an automatic system where it will represent no real threat. In case this automatic removal system does not function, the nuclear material will automatically be released from the satellite when the remains of the satellite becomes hotter through stronger friction, and it will burn up completely in the denser layers of the air. This would occur without any significant raising of the natural level of radiation.

The diplomat stressed that a prediction of the time and place of the remainder and the reactor entering the atmosphere could be made after the automatic separation function. The Soviet Union would of course fulfill its obligations in accordance with the International Atomic Energy Organization's convention on the notification of nuclear accidents "committedly and honestly."

Government Approves Space Station Draft Agreement

AU2507121688 Bonn DIE WELT in German
23 Jul 88 p 4

[A. J. article: "Green Light for Participation in Space Station"]

[Text] Bonn—The government has approved a draft agreement which provides for European-U.S. cooperation in the construction and operation of a large space

station, planned for the middle of the nineties. This was announced to the press in Bonn yesterday by Research Minister Heinz Riesenhuber.

The agreement, which has also been submitted to the governments of eight other West European states and to the United States, Canada, and Japan, provides for the delivery by Europe of three components of the joint Columbus space project. These three components include a manned and a fully automatic laboratory, as well as a scientific satellite which will also fly over the north and south poles on a special north-south route and which will carry out various scientific tasks.

The exploration of space, the observation of the earth, the utilization of weightlessness for experiments, and the preparation of long-term missions on other planets are the goals of the permanently manned station. The costs that will accrue for Europe by the end of 1998 were put at about DM18 billion by Riesenhuber. With a financial participation of 18 percent, the FRG is to assume a leading role among member states of the European Space Agency (ESA).

New Satellite for USA-FRG Communication
SS002468 Dusseldorf HANDELSBLATT in German
6 Jun 88 p 1

[Article by staff writer: "U.S. Satellite Takes Off With Ariane 4"]

[Text] Postal Minister Christian Schwarz-Schilling has invited American firms involved in the telecommunications industry to assume an active role in the German market. In an address to industry representatives, the minister also indicated that Pan American Satellite Corporation will be the first foreign provider of telecommunications services between the FRG and the U.S., thanks to a new satellite.

Sometime after June 15 the satellite is scheduled to be placed into orbit around the earth by the new European rocket, Ariane 4, which is making its first appearance in a launch from the Kourou launchsite in French Guiana. Schwarz-Schilling wished the Americans "good luck" on the project.

By opening the market, the FRG would join the U.S. and Great Britain, who agreed to closer cooperation in the field of telecommunications 3 weeks ago. As early as the middle of June, Intelsat's Board of Governors could begin discussing the German offer. Schwarz-Schilling explained the proposed reduction in national and international telephone rates in Germany to the American experts and the opening of the market to independent service providers. He said the rate reductions were "the first step toward cost-oriented rates."

For example, beginning 1 Sept., the rates for telephone calls between Germany and the U.S. would be reduced by 15 percent, which, in the Minister's estimation, would

lead to mutually beneficial results in trade between the two countries. Schwarz-Schilling also disclosed the deregulation of the German telecommunications system, which the German Federal Government enacted into law on 11 May, and which is a prerequisite for new providers to initiate service. The minister considers that advice from the Bundesrat by early July and passage by the Bundestag by September are likely, so that the law can take effect by the spring of 1989.

The Ariane 4 is a further development of the Ariane 3. It is capable of carrying larger payloads than the Ariane 3, and if it succeeded, it would provide the European Space Organization, Arianespace more orders from the U.S., which, since the Challenger disaster, has not had enough launching capacity from NASA. 13248

FRANCE

Cooperation With Japan To Counter Japanese Monopoly

55002475a Paris *LE FIGARO* in French 14 Jul 88 p 12

[Text] Telecom and the private consortium International Telecom Japan Inc. (ITJ) are offering new telecommunication services between France and Japan; they will compete with KDD [Kokusai Denshin Denwa], which has a monopoly on Japanese foreign communications. ITJ announced that it had applied for an official authorization of the Ministry of Posts and Telecommunications last Wednesday, to operate links between the two countries now that the Tokyo government has adopted a policy of deregulation of the archipelago communications. These links, the so-called dedicated links, are private lines leased to two clients for the transmission of telephone, telegraph or computer messages.

The agreement also paves the way for a subsequent extension of the ITJ-France Telecom cooperation to the telephone and integrated services digital networks, which should experience rapid growth between France and Japan. The competitor of KDD is expected to offer these services at prices about 20 percent below those of the private monopoly.

France Cables and Radio, a subsidiary of France Telecom, owns 2 percent of the stock of ITJ, a consortium of the 10 largest Japanese clients of KDD. KDD will retain a de facto monopoly on communications between Japan and the rest of the world as long as the operations of its two government-approved competitors remain in the preliminary stage.

The second competitor of KDD is a consortium, International Digital Communication (IDC), a large share of whose stock is owned by the British company Cables and Wireless. It was approved last year, after a hard political and economic battle with the Ministry of Posts which did not wish KDD to have more than one competitor, namely ITJ which is essentially Japanese-owned.

ITJ and France Telecom also would like to extend their cooperation to telephone "in the near future."

9294

Cooperation With Italy on Supranational Information Network

55002475b Paris *LES ECHOS* in French 22 Jul 88 p 4

[Text] France Telecom has signed a cooperation agreement on telephone directories with STET, the Italian national telecommunications company.

The agreement will enhance the respective expertise of the two countries in the field of traditional and electronic directories. France possesses considerable know-how in the management of public datacom networks, whereas Italy, which has also undertaken the development of a "business to business" electronic directory, possesses technical and commercial expertise in the field of traditional directories.

The agreement, which will lead to the constitution of a supranational information network, also provides for the creation of a joint coordination group to study all possible research and development fields.

9294

Matra, Alcatel in French Telecom Satellite Program

5500a041 Toulouse *LA LETTRE DU CNES* in French 8 Feb 88 p 2

[Unattributed article: "Matra and Alcatel Espace Selected for Telecom 2"]

[Text] Following a nation-wide call for bids, Matra and Alcatel Espace were selected by France Telecom and the DGA (General Armaments Delegation) as joint contractors (Matra being the prime contractor) for the development of three Telecom 2 satellites.

Starting in 1991, the Telecom 2 program will ensure continuation of the operational national telecommunications service and the development of new services for a 10-year period through civilian and military programs.

The civilian program will allow the development of: —telephone links and television distribution between Paris and French overseas departments (i.e., Reunion, Antilles, French Guiana, and Saint-Pierre and Miquelon). They will ensure the continuity of Telecom 1 services with a considerably higher communications capacity;

—data transmissions and television distribution beamed primarily to metropolitan France and neighboring European countries. The communications capacity will be considerably higher than that of Telecom 1.

The Telecom 2 military telecommunications program covers that part of the Syracuse 2 program dealing with space. It will continue Syracuse 1 services for the Ministry of Defense and considerably increase the system's transmission capacities and overall protection.

Research by the integrated Matra/Alcatel Espace team conducted during Phase B has produced a high performance system which fully meets civilian and defense requirements.

The experience acquired with Telecom 1 enabled the Matra/Alcatel Espace team to overcome the problems of integrating on a single satellite three very powerful payloads which require extensive equipment R&D due to their complexity. The Eurostar platform is an ideal response to the requirements of both the payload and planned applications, especially as far as satellite protection in space is concerned.

The Telecom 2 satellite, with a takeoff weight 1.8 times that of Telecom 1 and a lifetime 1.5 times longer, will carry a payload 3 times heavier and 3.5 times more powerful.

Telecom 2's payload will thus be the most sophisticated telecommunications payload developed in Europe.

This shows the technological progress made by Matra and Alcatel Espace between the two programs. Aiming at a rational industrial organization, Matra and Alcatel Espace decided to post the Telecom 2 project team at their existing adapted space environment in Toulouse (including systems engineer teams, testing, and integration tools). This team will jointly lead the various phases of the program, from design to final integration. Matra Espace in particular will be responsible for the platform while Alcatel Espace will be in charge of development and integration of the three payloads, civilian and military, in its Toulouse center. Final integration of the three satellites will be done on Matra Espace's premises in Toulouse.

To meet the requirements of next-generation satellites, Matra, in conjunction with British Aerospace, has defined a version of the Eurostar platform which is currently available. This platform, properly adapted to existing launching capacities, has already been qualified for the Inmarsat second-generation maritime satellites. It offers the telecommunications satellite market a product with a lifetime of at least 10 years (payloads of over 500 kg, more than 4 kW of power) and possible takeoff weight capacities ranging from 1,200 to more than 2,500 kg. Eurostar belongs to the satellite line produced by Matra in Europe, and corresponds to the industrial level of the Telecom 1/ECS/MARECS [European Communications Satellite/Maritime European Communications Satellite].

For its part, Alcatel Espace has invested heavily in shaped-beam antennas, a field in which it gained credibility thanks to its involvement in the Telecom 1 and later the Eutelsat II programs. The France Telecom and DGA R&D programs enabled Alcatel Espace to develop competitive aircraft equipment and thus to become Europe's modern payload specialist. For Telecom 2, Alcatel Espace will assure the manufacturing of a major part of the equipment, but it will also make extensive use of subcontractors for the development of payload equipment, thus demonstrating its capacity to manage a complex payload development program at an international level.

25048

GREECE

Satellite TV Planned for 9 Cities

NC1008165488 Athens ATHENS NEWS in English
6 Aug 88 p 3

[Text] The Greek Government announced the introduction of experimental satellite television broadcasts in nine major cities by October this year.

The announcement was made by Government spokesman Sotiris Kostopoulos after a cabinet meeting chaired by Prime Minister Andreas Papandreou. Kostopoulos said the decision was taken after a proposal by Dhimitrios Maroudhas, under secretary to the Prime Minister's Office.

The experimental broadcast of television programmes, to be carried out by Greek Radio Television, ERT Inc., will cover, in the initial stage, the cities of Athens, Piraeus, Thessaloniki, Ioannina, Corfu, Iraklion (Crete), Rhodes, Komotini and Florina. ERT Inc has already contacted various companies distributing satellite programmes, and has requested the right to re-transmit their programmes in Greece. With some of those companies, ERT Inc has already signed preliminary agreements.

The revolutionary developments in the field of audiovisual information taking place in Europe created a new situation and an unprecedented dynamic, Maroudhas said in his report. It was not incidental that all countries were trying to respond promptly and effectively to those developments. An integrated national strategy was necessary given the economic policies and their social repercussions that were appearing on the horizon, he said.

According to the Maroudhas report, "the rapid development and establishment of new media—satellite television, cable television, videotex, teletext, etc.—oblige us to determine a comprehensive confrontation that will enable us not only to utilise these developments, but also to intervene in the formulation of the terms of their development."

The report also states, "We have often stressed that these issues are of vital importance. The modern-day challenges and the new state of affairs in the mass media do not allow for any improvisations, any arbitrariness or any petty party ulterior motives."

The formulation and escalation of a national strategy was necessary, but without this meaning that the dissemination of information, communication and cultural creativity had "boundaries." An economic reality had been created, Maroudhas said, "and it is within this that we are obliged to live and create."

Europe, he said, had already commenced the battle: it was formulating its own cultural proposal that would enable it to confront the American invasion in the field of television programmes, it was effectively confronting American and Japanese technology, and it was trying to lend a new, integrated, European face to the mass media, and particularly to audiovisual media.

Greece, he added, was an equal member of the European Community, and could not remain distant from these developments, which have marked Europe's course to the year 2000.

In order to achieve these goals, however, the government's volition was not sufficient in itself. Also necessary were the harmonisation of the Greek communications systems with those of Europe, adaptation of Greek radio and television to the new developments, and active participation in the upgrading of television programmes.

Also necessary was the utilisation of the European experience in the field of audiovisual media, and the establishment of national development planning. In this direction, the report said, the PASOK government had already taken a series of important decisions, many of which had already been implemented while others were in the process of implementation. Those decisions establish the prerequisites for a comprehensive national policy in the field of mass media.

More specifically, the government introduced local radio, unified the two television networks with Law 1730/87, prepared the country's entry into digital technology, prepared the reception of satellite programmes and their distribution via cable, instituted the framework of the consolidation of free satellite reception, with parallel provision for the installation of satellite antennas, is actively participating in the European information processing programmes (STR, RACE, ESPRIT), proceeded, at the initiative of ERT, Inc, to the renting of a satellite transponder for the transmission of a Greek television programme to European countries, proceeded to the establishment of an Institute of Audiovisual Media in order to train officials and employees in Greek television, and on the initiative and responsibility of the

ATHENS NEWS AGENCY (ANA), organised two training programmes, in cooperation with the EEC Social Fund, which substantially assisted in the exploitation of new technology (data banks, videotext, laser printing, etc.)

In order to complete those efforts, the PASOK government was now proceeding to the establishment, on an experimental basis, of reception of satellite television programmes at a local level.

This experimental application would be carried out by ERT, Inc and would cover, in the initial phase, the cities of Athens, Piraeus, Thessaloniki, Ioannina, Corfu, Iraklion (Crete), Komotini, Florina and Rhodes.

In its planning ERT, Inc would work together with the Central Union of Municipalities and Communities of Greece (KEDKE) and the research centres of the country, as provided under the Presidential Decree on satellite television. ERT, Inc, in the planning and implementation of this decision, would work within the framework of the Constitution, national legislation, international agreements and treaties, and the terms established internationally regarding the retransmission of satellite programmes.

Greece, Maroudhas said in his report, could not be the first and only European country with municipalities and mayors running unlicensed stations.

ERT, Inc had already contacted the companies distributing satellite programmes and requested the right to freely re-broadcast their programmes in Greece, and had already signed preliminary agreements with some of those companies.

SWEDEN

Mobile Phone System To Be Tested In Stockholm
55002479 Stockholm DAGENS NYHETER in Swedish
13 Aug 88 p 12

[Text] In 1991, a new digital mobile phone system will go into operation throughout Europe. With the new system, it will be possible to use the same mobile telephone in all the 16 countries connecting up with the system. Swedish Telecommunications [Televerket], together with Ericsson, is building a test system in Stockholm for the new mobile phone net. It will start operating in early 1989, and then important functions will be tested from vehicles in Stockholm traffic. The objective is to see if the system will function under practical conditions in traffic.

TURKEY

Satellite Broadcasts Encoded
55002457 Istanbul MILLIYET in Turkish
12 Apr 88 pp 2, 13

[Text] Ankara (ANKA)—It has been announced that TV broadcasts transferred from Adana Incirlik American Base through transponders, will be coded.

In an article published in the PTT magazine, it is mentioned that the formula "decode and watch the world" will be implemented in the PTT's satellite broadcasts and that TV broadcasts, taken from Incirlik base and distributed to 22 American bases in various parts of Turkey, will be encoded, enabling only those with decoders to watch.

The article says that many hotels, tourist facilities, and homes with antennas 4.5 metres in diameter can watch the programs broadcast for Americans in Turkey, but

that following implementation of the coding system this year, broadcasts will only be watched by those on the Turkish-American joint installations.

Six-Channel TV Broadcasts

The article mentioned emphasizes that the PTT is in the process of feasibility studies on such topics as satellite communications, cable TV and manufacturing and launching satellites, and contends that the infrastructure for 6-channel broadcasting currently exists.

12777/12223